

WHAT IS CLAIMED IS:

1. An apparatus for driving a compressor, comprising a compressor having a compression mechanism part for sucking a fluid to compress the same and an electric motor for driving the compression mechanism part, and an inverter device for driving the electric motor at variable speeds, wherein

the electric motor comprises a self-starting type electric motor having a rotor, which comprises a cage conductor and a polarized permanent magnet, and

the inverter device comprises a plurality of semiconductor switches for controlling drive frequencies of the electric motor.

2. An apparatus for driving a compressor, comprising a compressor having a compression mechanism part for sucking a fluid to compress the same and an electric motor for driving the compression mechanism part, an inverter device for driving the electric motor at variable speeds, and switchover means for switching connection between the compressor and the inverter device, wherein

the electric motor comprises a self-starting type electric motor having a rotor, which comprises a cage conductor and a polarized permanent magnet, and

the switchover means is structured so as to change over operation of the electric motor either at constant speed with a commercial electric source or at variable speed with the inverter device.

3. An apparatus according to claim 2, further comprising control means for automatically switching the switchover means to a constant-speed operation with a commercial electric source from a variable-speed operation with the inverter device when trouble in the inverter device is detected.

4. An apparatus according to claim 1, wherein the electric motor comprises a permanent magnet of two poles on the rotor, and respective poles of the permanent magnet are divided into a plurality of permanent magnets to be arranged along a circumference of the rotor.

5. A refrigerating air conditioner comprising:  
a refrigerating cycle, in which a compressor, an outdoor heat exchanger, an expansion device and an indoor heat exchanger are connected together by means of a refrigerant piping;  
an inverter device for driving the compressor at variable speeds; and  
control means for controlling the compressor;

wherein

the compressor comprises a compression mechanism part for sucking a fluid to compress the same, an electric motor for driving the compression mechanism part, and a closed vessel receiving therein the compression mechanism part and the electric motor, and

the control means controls the inverter

device on the basis of a control signal, and

the electric motor comprises a self-starting type electric motor having a rotor, which comprises a cage conductor and a polarized permanent magnet, and

the inverter device comprises a plurality of semiconductor switches for controlling drive frequencies of the electric motor.

6. A refrigerating air conditioner comprising:

a refrigerating cycle, in which a compressor, an outdoor heat exchanger, an expansion device and an indoor heat exchanger are connected together by means of a refrigerant piping;

an inverter device for driving the compressor at variable speeds;

switchover means for switching connection between the compressor and the inverter device, and

control means for controlling the compressor; wherein

the compressor comprises a compression mechanism part for sucking a fluid to compress the same, an electric motor for driving the compression mechanism part, and a closed vessel receiving therein the compression mechanism part and the electric motor, and

the control means controls the inverter device on the basis of a control signal, and

the electric motor comprises a self-starting type electric motor having a rotor, which comprises a

cage conductor and a polarized permanent magnet, and the switchover means is structured so as to change over operation of the electric motor either at constant speed with a commercial electric source or at variable speed with the inverter device.

7. A refrigerating air conditioner according to claim 6, further comprising control means for automatically switching the change-over switch to a constant-speed operation with a commercial electric source from a variable-speed operation with the inverter device when trouble in the inverter device is detected.

8. A refrigerating air conditioner according to claim 5, wherein the electric motor comprises a permanent magnet of two poles on the rotor, and respective poles of the permanent magnet are divided into a plurality of permanent magnets to be arranged along a circumference of the rotor.